Research Proposal of the Thesis Entitled

A Study on Transformational Reconstruction techniques ameliorating creative pattern making skills

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Introduction:

Fashion designers must constantly innovate, which means they must examine and test out new methods and tools. In the past, a lot of designers would base their creations on their intuition, "Rule of Thumb" Attaining a prestigious position by adherence to principles and general assumptions was a challenging endeavor. A significant degree of expertise, specialized knowledge, and artistic discernment was necessary. We can see such works in galleries and museums today. Today, design individuals must learn to undertake their own study to attain a deeper comprehension of the people and the socio-cultural-economic factors that shape them.

The combination of fashion and architecture is sometimes referred to as Wearable Architecture or Architectural Fashion. Since the public admiration of architectural works, many have dabbled in the style of architectural fashion. Architectural influences can be seen in the fashion hall of fame's sweeping angles, exaggerated proportions, and fine craftsmanship. The creation of strong silhouettes requires careful consideration of form, structure, and shape. Pleating, folding, twisting, and layering fabrics are common building techniques.

The act of drawing up a blueprint for your clothing is called pattern making. To cut fabric that conforms to the specifications required for garment construction, a pattern serves as a template. It takes into account the kind of fabric, the intended fit for the wearer, and any intended trimmings. To ensure that 2D cloth fits correctly on a 3D body, a design is used.

Cutting and sewing flat fabric pieces to assemble into three-dimensional clothes is the skill of patternmaking and sewing. We can still obtain the individual pattern parts if we disassemble and flatten the 3-D garments.

The flat pattern components and the garment's three-dimensional structure are always related to each other. Like the parts of a jigsaw, we can make a garment by cutting, rearranging, and sewing together the components of designs. One can alter and redesign the patterns by utilizing their own creative thoughts.

Digital pattern making is starting to gain traction in the fashion industry, replacing the manual process of generating paper patterns. It can reduce sample-making expenses by up to 30% and is more accurate and time-efficient. Additionally, it lets you see the finished design on a digital model. Customers using fashion design software such as Tukatech have access to a vast collection of 2D and 3D fashion pattern templates.

For fashion designers who are unfamiliar with 3D design, this is an excellent opportunity to learn because you won't need to start from zero while creating patterns, but forfeit the abilities since their creative boundaries are preprogrammed. For many years, architects and fashion designers have engaged in creative dialogue. Since both fashion and architecture come from the same root—art— they have consistently maintained a tight relationship. Architecture is an art that is inhabited, whereas fashion is an art that is worn. While fashion is a passing fad that comes and goes just as swiftly, architecture is more solid and unchanging.

Fashion designers must prioritize individuals in all their endeavors and create solutions that consider the welfare of humanity. Today, we live in an age marked by limitless prospects and significant challenges, when the physical world merges with the digital sphere, both pervasive and

evident. Increased speed and efficiency, production optimization, flexibility and agility, new customer interactions, and revenue are all features of Industry 4.0 that have not been changed by it. “The main question we must pose is WHAT? We must ascertain the necessity for transformation.” According to the World Economic Forum (2018) The recent advances significantly upset not just numerous established sectors and company models but also the employment markets. The world had suffered in many ways with the effect of Covid 19. Many existing jobs became fully or partially automated, consequently; nearly all new employment opportunities will prioritize judgment and decision-making skills. According to World Economic Forum, over the next few years more than half of all employees will require significant reskilling and upskilling, this also means that we are going to see increased number of displacement workers from disrupted economics enrolling in universities to retrained for new or emerging knowledge-based jobs (world economic Forum 2020:13)

Originally created to meet the demands of the first and second industrial revolutions, the mainstream educational model is still widely utilized today. Specifically, the fourth industrial revolution is now demanding that a whole new set of competencies be added to the workforce. As a result, the existing educational model will also need to alter. A white paper titled "Education 4.0," or "the schools of the future," was prepared by the World Economic Forum (2020:4).

1. Skills related to international ethnicity
2. Creativity and innovation abilities
3. Proficiency in Technology
4. Capabilities in interpersonal relationships
5. Tailored and independent education

6. Comprehensive and attainable education

7. Cooperative and problem-centered education

8. Student-centered and lifetime learning

Human mobility, diversity, digitalization, and increased globalization have all played a part in the paradigm shift in how future workforce education is approached.

The shift to Education 4.0 will necessitate learning mechanisms that more closely reflect the nature of work in the future. For the purpose for a large number of individuals to be successful in a biosphere that is growing more complicated by the day, they will need to acquire the ability to operate outside the bounds and restrictions of their respective disciplines. Unfortunately, the majority of colleges mainly focus on developing comprehensive programs that are dedicated to a certain field of study (macro-credentials), which are mostly applicable to students who have graduated from high school and other conventional methods of education. But they will have to embrace it or fall behind. It will soon become crucial for colleges. This discussion should include a fresh perspective on the demographics and incentives of adult learners, assessments of the demands of the labor market, and an examination of how these new opportunities can be met. It can be difficult for students who were trained in a single method to adjust to new developments. Every change becomes a new opportunity for students when they are taught to develop curiosity, create relevant questions, and seek answers in a variety of academic subjects.

"Despite the limitations imposed by the coronavirus outbreak, e-learning platforms have accelerated the learning process and provided teachers and students with a wide range of subject options along with a variety of easily comprehensible and understandable approaches." In order to create classrooms of the future in Indian colleges, universities, and schools, the new educational

trend, sometimes known as "education: 4.0" or "new-age learning," calls for updating teaching and learning techniques and putting cutting-edge resources into place. In contrast to 52% in the US, 75% in Germany, and 96% in South Korea, only 21.2% of Indian workers are skilled, according to the Human Development Report 2020. From a postmodern standpoint, interdisciplinary education emphasizes learning for changing market conditions and employable job skills. NEP 2020, the new push for interdisciplinary education by the Indian government, is a significant initiative. Transforming a single-discipline university into a multidisciplinary institution presents significant challenges, primarily due to the substantial financial resources required for such a profound restructuring. But the curriculum reform would also help to make multidisciplinary teaching possible in Indian higher education. Additionally, because some students were unable to adjust, the lack of resources and tools brought about by the students' online learning resulted in observable skill gaps, which in turn caused a talent gap in the industry.

Making patterns is the process of creating an outline for your clothes. The application of a pattern serves as a foundation for the purpose of cutting out cloth that conforms to the requirements necessary to produce a garment. It considers the type of fabric, the wearer's anticipated fit., and a little planned embellishment. A design is used to guarantee that 2D clothing fits properly on a 3D body.

Sewing and patternmaking are skills that involve cutting and stitching flat fabric pieces to create three-dimensional clothing. If we disassemble and flatten the 3-D clothing, we can still get the individual pattern pieces.

The interplay between the three-dimensional structure of the garment and the flat pattern elements is consistently evident. The components of designs can be cut, rearranged, and sewn together to

create a garment, much like the pieces of a jigsaw puzzle. By applying their own imaginative ideas, one can modify and re-design the patterns. Architectural influences can be seen in the fashion hall of fame's sweeping angles, exaggerated proportions, and fine craftsmanship. Form, structure, and shape must all be carefully considered when creating powerful silhouettes. Frequently used building techniques include pleating, folding, twisting, and layering fabrics.

Fashion designers who are unfamiliar with 3D design will have a great opportunity to learn because pattern-making will not require them to start from scratch because their creative boundaries are preprogrammed. Therefore, it is imperative that students and fashion designers constantly innovate, which involves researching and testing out new methods and tools.

Literature Review:

Introduction to Literature Review:

A literature review can significantly inform the development of fashion curriculum and pedagogy by identifying effective pedagogical approaches, integrating sustainability, and addressing social justice issues. By synthesizing findings from various studies, educators can create a curriculum that is not only relevant but also responsive to the evolving demands of the fashion industry. The Literature was autonomously and analytically searched through several database, such as Google Scholar, Scribbr, Elsevier, and Scopus. The keyword used were fashion designing and education, pattern making Skills, sewing, origami fashion and education.

Criteria for Literature Review:

The research parameters were met by more than 100 studies in total, criteria being the skill needs, education of fashion practices among various schools and colleges, and the need of their creative skills towards the industry, the study that was included as part of a literature review should mention

fashion education, creative patternmaking, sewing, fashion education, knowledge and practices, origami and creative patternmaking. Approximately 50 research papers were deliberated, it is then analyzed, synthesized, and thoroughly assessed to provide a comprehensive understanding of the current knowledge on the topic.

The below 20 studies have been documented which is focused on fashion education, skills impact on fashion sewing, creative ability development with origami learning in various levels of student learning programs.

- A study by (Arya N 2016) indicates; examining different segments that exist between the design concept phase, it is crucial to focus on fashion as a construction of patterns through design thinking. The paper discusses various fundamental methods and recent developments in apparel design. towards the methods of pattern development like Flat Pattern Making, Drafting, Commercial Paper patterns, Pattern Alteration Techniques, Draping, Pattern-Making Software and Virtual Reality Clothing; discussing its process, advantages and limitations for each methods, paper concludes that techniques for developing clothing are essential if a fashion designer's concept is to turn it into a garment, and it’s crucial It is essential to recognize that without employing one of these methods, the development of a wearable iteration of an innovative fashion design concept is nearly unfeasible.

  Scope: Designing garments is not just art but requires skills, it is not possible to convert design to tactile garments.

- The study by (Sonika Soni Khar et al., 2018) on “Research Methods in Fashion Design”, the paper investigates every component examined throughout the design process, from

ideation to product creation for fashion designers. It mentions various steps of research involved in fashion with a systematic approach from history, investigations, explorations, reading, visiting various places and to record the information. This paper focuses on secondary, primary and tertiary research methods, with the approach of tactile experience towards design thinking with Photography, surface explorations, drawing and more to evoke the sensual memories towards design thinking. This paper focuses on both quantitative methodology and qualitative approaches of data collections and a method of visual diary documentation for understating the research complications. It also concludes with the experiments to check on each level of investigation towards the completion of a product, hence this paper provides a beginner's idea towards research for fashion designers towards product development.

Scope: As the paper focuses on the general idea towards research, there is a scope for developing a specific research method for specific areas of fashion and design.

- The study by (Ampong, I. 2012) pointed to evaluate the cutting pattern skills imparted at teacher education universities in Ghana against those utilized in the small-scale clothing sector within the region. This paper claims established patterns failed to yield properly fitting garments for numerous clients; thus, freehand cutting emerged as the most cost-effective alternative. This paper is a qualitative approach for researching the ability of instructor's skill levels to teach their students. The parameters considered here are 1: educational background of the demonstrators, 2: Several years of expertise in garment production among individuals and comparison of the curriculum methodologies. The tools used to test were Measurements, pattern cutting procedures, demonstration techniques.

The project aims to establish a link between skill training in pattern-making at the University and industrial practices. The findings indicate a compelling need for the University to involve entrepreneurs from the Garment Industry in shaping its curriculum and skill training programs. concluding as the students of Ghanaian Universities need more skills; Incompetence, a lack of self-assurance, and a lack of enthusiasm in the Clothing Construction course are all results of the current scenario. Additionally, it improves graduates. Teaching clothing, fashion, or sewing effectively in schools is unfeasible, thereby necessitating the implementation of pattern cutting postgraduate traineeship. Scope: The sartorial structure curricula of the two teaching universities in Ghana must be reassessed to ensure they meet the needs of the professional community.

- A study by (Pietroni et al., 2022) indicates a technique for calculating for a specific 3D clothing model, a stitching pattern is recommended. To generate pattern pieces suitable for fabric cutting and assembly into a garment, their approach sections an participation 3-Dimensional garment shape into pieces and calculates its 2-Dimensional parameterization. Their proposed algorithm must meet a number of (interdependent) requirements in order to compute a useable, manufacture-able sewing design for a garment such as Pitch Shape, Bounded fabric strain, seam weight feasibility, layout symmetry, grain alignment, and pipelines of cross-field construction, patch flattering. The study focuses on the techno part of textile woven fabrics. The outcome and examine the various stitching patterns produced by their technology. The worker's main inputs include the highest value number of edges for each pattern section, C, and the supreme permissible give. The document asserts that the pipeline is applicable for producing dewing patterns for both snug and slack clothes,

accommodating all physique forms, even those of animals. The distortion computed during the patch decomposition stage could be distinct from pattern component quantization distortion. Due to their greedy method, even slight changes in the input clothing or user constraints might affect the pattern.

Scope: Seam allowance limitations for quick and reliable sewing pattern creation.

- A descriptive study by (Suryani & Yahya, 2018) objects to provide an summary of how successfully fashion students acquire to make apparel patterns employing CAD software as measured by the results of acquaintance and recital tests, as well as the students' responses. Documentation, tests, questionnaires, and observation were used to collect data in research. While conducting the analysis of the data, the descriptive investigation approach and gain testing were employed. The study's results indicated that the training provided to fashion students in clothing pattern creation using CAD systems met the established effective criteria based on the following: 1) The pupils' intelligence of fashion pattern construction has enhanced significantly. Testing for gain produced a result that was average, while performance testing yielded a highly improved result. 2) Significantly fifty percent of the students acknowledged contentment with the training, the instructors, the resources, the assignments, and the comfort level of the instruction.

  Scope: With the right instructions and training, advanced knowledge and skills can be improved.

- This study by (Shoaib, 2015), looked into wherefore dress creators in the Ho Metropolis don't practice patterns to cut out dress projects. Descriptive survey research design was used to collect data, questionnaires, semi-structured interviews, and observation were used.

Out of the 180 dressmakers in the Ho Municipality, a total of 140 were included in the sample. The main parameters of the samples are general backgrounds of the participants like age, educational level, their method of preferences for cutting, challenges they face while cutting, and some strategies they adapted. According to the researchers' When creating clothing components, the Municipality's designers mainly utilized "free-hand" cutting approaches. which constrained their ability to create intricate designs. The challenges encountered by patternmaker's stem from insufficient skills developed during their apprenticeship and a deficiency in technical knowledge related to pattern making. The paper's conclusions unequivocally demonstrate that dressmakers are unable to take precise and regular measurements for drawing. Consequently, the direct or free-hand cutting out approach was employed.

Scope: knowledge of new methods and education to increase abilities.

- This study by (Almond, 2016) focuses on ways that fashion-related practical skills might be investigated to create novel and engaging ways to design and cut, thus enhancing design development. The pattern cutter employs abilities, expertise, experience, and insight to comprehend and resolve in a practical manner, often using unconventional and unanticipated part combinations. This has gained academic recognition in many countries by the inclusion of innovative pattern cutting at the university level curricula. A focus is placed on the relevance of those technical qualities that are involved in artistic patterns in the Creating Unique Patterns curriculum, it is available at the post-graduate and bachelor levels. Furthermore, it illustrates the enthusiasm and prospects for distinctive career paths in this sector. In tandem with this progression in pattern cutting education, there has been

an increase in the amount of research conducted within the field, as well as the expansion of concepts on what exactly establishes research in this particular area of exercise. The answers to the queries are conversed in kith and kin to how clothes shape the human body. This is made possible by the pattern cutter's informational skills, which allow him or her to transpose various silhouettes onto an inherent shape and accentuate characteristics. The purpose of carrying out research that is considered to be legitimate, the objectives of the study were to build an intellectual link between the creative process and academic inquiry. Utilizing one's talents and methods for the creation of three-dimensional forms to their greatest potential is necessary in order to comprehend a design.

Scope: Academic investigation into pattern cutting and the potential for deeper exploration through the interplay between theoretical frameworks and practical application.

- Bakker-Edoh et al.'s research aimed to understand customer satisfaction with garments made using pattern propelling and free-hand cutting processes, focusing on the fit and satisfaction of client requests. In order to ensure that the research was able to conduct an adequate analysis of the strategies that were more likely to be accepted by the market and contribute to the expansion of the company, interviews with consumers were conducted. The study used semi-structured conversation guides to gather qualitative data from an age-specific client focus group, who concluded that clothing made with patterns and cut directly from fabric cannot be compared. The findings indicate that clients generally concurred that enhancing education and training in innovative clothing production techniques would represent a constructive advancement. If business owners in the informal fashion sector

wish to remain in operation, customer demand for high-quality services will likely be a powerful driver behind the necessary improvements.

Scope: Demands improved education on skills related to pattern drafting.

- This study by (Irmayanti & Hadi, 2018; Tolley et al., n.d.) The study found that proficiency in pattern-making significantly impacts the quality of women's blazer production, indicating a direct impact of fundamental knowledge, drafting skills, and sewing proficiency. while sewing expertise also had a considerable effect. Furthermore, both knowledge of pattern making and drafting, along with sewing expertise, impacted the quality of women's blazer production. This research utilized descriptive and inferential statistical analytic methods. The average value of each variable was characterized using an analytical method. Initial observations revealed that the anticipated capabilities were not completely attained, since the resultant goods had low quality and most students failed to finish their responsibilities punctually. Being skilled implies rapid implementation, in the sense that the task can be completed in the shortest amount of time. The faster a task is completed without sacrificing the expected end result (quality), the more skilled the student is. As a result, a student's skill is an ability that should be measured and evaluated as it develops. This finding is supported by Yanti's study, which discovered that learning skill influenced student learning outcomes. The results of this study, which show that sewing ability considerably influences the quality of the women's blazer produced in the tailoring course.

  Scope: The quality of the students increases with their skill level.

- In the study by (Tolley et al., n.d.), The study presents a method for the rapid and cost-effective fabrication of self-folding shape memory composites, known as self-folding origami, using lithographically patterned thin films. The "PC-MEMS" techniques, developed for microscale robotic systems, are tested through residual stress. The researchers use a systematic approach to create self-folding origami using polystyrene shrink material films and microfluidic molds. The composites can be efficiently produced with cost-effective supplies and equipment. The study also aims to reduce variability, automate 2-D composite design generation, and explore consistent heating for shape memory compounds.

  Scope: Improvements in composite design or fabrication, or advancements in the functionality of folded structures.

- This study by(et al., 2019) delineates a special origami folding technique for 5-year aged kids is used to measure their ability. This study utilizes a qualitative case approach that emphasizes realistic patterns, concentrating on preschool-aged children. The study is carried out in the morning at a chosen private kindergarten, involving observations and the documentation of pertinent literature tools. “The techniques for folding encompassed mountain, valley, pleat, reverse, inside, sink, book, cupboard, blintz, bi-set, double reverse, swivel folds and more.” In their investigation, the researchers came to the conclusion that some of the conventional approaches of folding origami are not suitable for children less than five years old. The research featured a comprehensive investigation of the creative link between origami art (the folding method) and the idea of edutainment, with a particular focus on children who were less than five years old. Origami art will

therefore provide children with the opportunity to enhance their creative ability, which will be beneficial to them.

Scope: Future studies may need to focus on the different stages of early infancy to develop a comprehensive understanding of the kid's origami enfolded method phase.

- The paper by (Gussule, n.d.) reflects on various aspects of competency assessment in higher education, particularly in the context of fashion studies. While the specific literature survey is not detailed in the provided contexts, we can infer several key themes and areas of focus based on the content discussed: Competency-Based Education: The document probably cites prior studies on competency-based education, highlighting the significance of providing students with practical skills and knowledge that can be immediately utilized in the job market. This method stands in stark opposition to conventional educational frameworks that emphasize mainly theoretical understanding. Assessment Challenges: The challenges associated with evaluating competencies in educational settings are a critical area of discussion. The literature may include studies that highlight the difficulties educators face in creating effective assessment tools that accurately measure student competencies and learning outcomes.

  Educational Planning and Curriculum Design: The paper suggests that effective educational planning is essential for competency-based assessment. Literature in this area may cover best practices in curriculum design that align with competency frameworks, ensuring that educational objectives are met while preparing students for real-world applications.

Traditional vs. Competency Assessment: The distinction between traditional assessment methods and competency-based evaluation is a significant theme. The literature survey may include comparisons of these approaches, discussing their respective advantages and limitations in measuring student performance and readiness for the job market.

Role of Evaluation in Learning: The document underscores that assessment is an essential component of the educational process, especially for learners. Literature in this area may explore theories of assessment and feedback, highlighting how effective evaluation can enhance student learning and development. In summary, while the specific literature survey is not explicitly detailed in the provided contexts, the paper likely engages with existing research on competency-based education, assessment challenges, educational planning, and the role of evaluation in the learning process, drawing on a range of studies to support its reflections and proposals for improvement in fashion education.

- The study by Durisseix (2012) The article explores the use of origami in engineering projects, highlighting its relevance in geometry, pattern creation, material strength, and mechanics, but lacks a comprehensive list of uses and design invention. Edge diagrams, the creation of textures and patterns using heat-setting techniques, the healing of surfaces and folds, crease patterns of mountains and valleys, and much more. The techniques employed in the folding of an origami model are outlined below: Deployable structures, viewed through the lens of rigid origami as rigid paper components, present major possibilities for innovative constructions within the field of civil engineering. It is still challenging to make folds on a very small size when the production process is carried out at an industrialized level. The instance of deformed tessellations on a warped surface

represents one of the most challenging examples to demonstrate. This is due to the necessity of fabricating their component pieces and developing a mechanism that assesses their foldability.

Scope: Moving forward in that direction or utilizing origami techniques to make projects more intense

- Mohamed's study from 2022 intends to investigate the possibilities of various origami techniques as a fun art form for kids. Children as consumers of fashion and apparel are the main focus. creating fashionable clothing designs from children's origami projects. To engage children as active consumers, design clothing for children who do origami crafts and set new standards for how children are acknowledged. Both applied methodology and descriptive analysis methodology are modified in this study. The article details different designers' creations and sources of design inspiration. Seven outfit designs for the same children served as the basis for the more than 20 origami shapes that the children made out of colored paper. It aims to create items like dresses and frocks for kids with origami-inspired designs in addition to photographing the kids' origami creations. This research focuses on two ways to use specific origami techniques that reflect a historical culture: first, by using children's artistic feelings to make origami a popular pastime, and second, by using their artwork to make clothes suitable for kids aged 4 to 10.

  Scope: Origami can be used to turn children's creative ideas into avant-garde fashion designs.

- Wang's (2022) study summarizes the appropriate descriptive methods and detailed research on the use of origami in clothing project, explores the qualities of fabric through

experimental analysis, and examines how the exterior and molding properties of origami can be creatively applied to fashion design. Through theoretical research, several effective application techniques have been identified by examining the design legislation from the standpoint of garment geometrical and structural design. Continuing to explore and experiment with origami's creative uses in clothing design is the best approach. The investigation centers on the utilization of origami within the realm of Chinese apparel. comparing it to other countries' research in origami art, involving extensive textile folding tests. It also summarizes the effects of different application techniques on the choice and outcome of textile materials. Using crimping and ironing to shape, Comparative analysis of stitching texture molding's use on different textiles, such as cotton, polyester, and PU-coated materials; investigating the connection between fabric thickness and folding spacing, The study explores the impact of molecule size on stitching texture molding and explores various fabric styles using origami art, focusing on pattern, folding, color conversion, and structure unity.

Scope: While showcasing the advantages of three-dimensional space modeling design, origami offers a fresh look that is consistent with contemporary aesthetics. However, more explanation is needed regarding the use of folds and darts in modern clothing design.

- This study by YEZHOVA et al. (2018) Among its features is a survey of educational paradigms and developments in the Americas, Europe, and Asia, This article takes a look at different individuals and preparation approaches in fashion education in the world that are renowned for thriving in fashion project and sewing product manufacturing for Education in trendiest nations is placing a greater emphasis on creative and economic

curricular components, Manufacturing nations are increasingly focusing on the professional and scientific elements of education.

- According to the study, the sewing industry is an essential part of the production sector that aims to provide the populace with everyday textile goods like clothing. It highlights the need for continuous educational renewal and the training of experts to satisfy modern demands because of the speed at which technology is developing. Conceptual analysis, synthesis, and comparison were used to present the scientific literature while examining legal standards. Countries that are at the forefront of fashion and style place a high priority on both financial and creative education, as do those that manufacture stylish clothing. As a result, their study's findings demonstrate that fashion education is divided into distinct levels and directions for different educational levels across a range of nations, including the USA, France, Italy, Japan, and China.

  Scope: Give greater consideration to the fashion education component of technology education.

- For hundreds of years, the fields of architecture and fashion design have been used to meet the housing needs of people on different scales, but they have not offered any insight into future decisions. In a sense, Karadeniz's study of these disciplines seeks to define the socio-cultural, political, and technological values of the past and present. In architecture education, practical studio (design) classes are very important because they are meant to help students develop their designing and creating skills. In order for there to be an open and honest dialogue between the artist and the audience, Creativity in art demands complete authorization between the artist and the situation and object in question. In a

similar vein, students, the case they follow, students who resolve, other students, and educators must all be completely honest and cooperative in order for there to be mutual information, idea sharing, and collaborative research in the field of education (Erzen, 1976).

- The study reveals that the design process is universal across disciplines, with differences arising from information and materials. The design is people-oriented, allowing architects to create a language with training in other disciplines, resulting in fashion design with an architect's eye.

  Scope: Innovative design approach workshops are necessary for the development of the individual designers as well as the experts to endure the demands of the fashion industry.

- This study by (Şakir Özüdoğru1) This investigation explores the advantages and obstacles associated with distant learning in the fields of textile and design for fashion. at "Eskişehir Technical University: Turkey", using data from assessment meetings, personal experiences, and unstructured interviews. The paper emphasizes the significance of interpersonal relationships and group learning, along with the value of art and design training. Descriptive analyses were used to examine the transcriptions of the meeting and interview notes. Theoretical basis courses are therefore a strength of the schools and a threat or weakness for not offering effective practical support. This results in a SWOT assessment of the pandemic-related distant learning initiatives, as well as important observations from a range of perspectives. The scope is being away from the atelier setting. unsuccessfully establishing a mentor-protégé relationship. disruption of group learning procedures and lack of basic vocational knowledge.

- This study by (Arasinah et al., 2014) In order to provide graduates with the competences necessary for future business success, the research assessed the technical skills, knowledge, and industry developments that will occur in the garment sector over the next ten years. It also provided suggestions for the curriculum and teaching that would be implemented.

  Scope: Innovation and Design execution skills are needed, hence adapting new methods and techniques is important.

- Baiocco S 2020's study examines the concepts of skill demands, skill transferability, and skill imbalances, as well as the main scientific findings and how these concepts are mobilized. It does this by measuring the concepts of skill needs, developing transferable skills, and Using data from worldwide surveys, online sources, and web-based surveys, as well as gathering information from global employer and employee surveys and new Internet data sources, skill disparities were investigated. Utilizing fresh cyberspace data sources, like information from online polls, social media, and job boards. The purpose of the present research was to see if information gathered through the World Wide Web could be used instead of or in conjunction with data from worldwide surveys of stats.

  Scope: using the above measuring tools there might be scope to study the skills of students and evaluate the needs for advanced techniques for learning.

Research Gaps

1 Pedagogical Approaches

- Experience-Based Learning: Studies emphasize the effectiveness of hands-on, project-based learning in sustainable fashion design, enhancing student engagement and understanding (Zabidi & Jamaludin, 2024).

- Diversity and Inclusion: Incorporating social justice pedagogy encourages critical examination of historical and sociocultural contexts, fostering a more inclusive curriculum that reflects diverse contributions(Reed, 2021)

2 Sustainability Integration

- Material Innovation: Research highlights the importance of teaching sustainable materials, such as bacterial cellulose, to prepare students for eco-friendly practices in the industry (Wood et al., 2023).
- Curriculum Redesign: The need for a curriculum that prioritizes recycling, reuse, and redesign is essential for addressing environmental concerns and promoting sustainable practices (Agarwal, 2023).

3 Future Directions

- Evolving Practices: The fashion education landscape must adapt to societal changes and professional practices, emphasizing mentorship and innovation in design pedagogy(Faerm, 2012).

Problem Definition:

The fashion industry is under pressure and threat because of the need for talented designers brought about by inventions and technological advancements that limit the potential of individual tactile skill levels. The most cutting-edge technological developments and methods for developing creative patterns to meet consumer needs combine creativity and critical thinking with a well-organized blueprint. To start a long-lasting career in what is regarded as a very productive workplace, these kinds of skills are necessary.

Need for the Study:

Integration of these elements of Sustainability, Curriculum Redesign, Evolving Practices is crucial, some argue that traditional methods still hold value in foundational fashion education, suggesting a balanced approach may be necessary to cater to diverse learning needs.

Aim:

The aim is to investigate and create a TR Cutting Techniques module tailored for clothing designers and fashion design students, which will enhance their skills in innovative design of patterns and stitching.

Objectives:

1. To analyze the present curriculum for fashion design students for in-depth understanding of the skill-based course structures.
2. To measure the basic pattern making, sewing, and garment construction skill levels of fashion design students of Diploma, UG, and PG levels before the adaptive methods of the Creative TR Cutting method.
3. To impart TR cutting and origami patternmaking methods to expand students' creative skills.
4. To analyze the skill levels after the adaptive methods of Architectural approach of TR Cutting method in pattern-making techniques.
5. Create a fundamental module in pattern making and sewing that incorporates TR Cutting and Origami techniques, aimed at enhancing the skills of fashion designers and innovators while ensuring brevity, precision, accuracy, significance, dimensions, broadness, reason, value, and fairness.

Scope of the Study:

The need for transformational reconstruction techniques in fashion design is increasingly recognized as essential for fostering creativity, sustainability, and adaptability within the industry. Transformational Reconstruction (T.R) enhances creative expression by allowing designers to explore various shape transformations, such as internal and external variations, which can lead to innovative garment designs that reflect contemporary trends and subcultural aesthetics ("Using Transformational Reconstruction (T.R) as a Technique for Developing Creativity in Fashion Design Education", 2023) (Kwon, 2006). Moreover, the development of transformable garments, which can change styles or silhouettes, promotes sustainability by extending the life-cycle of clothing and reducing waste, thus encouraging consumers to engage in sustainable fashion practices(Fe et al., 2015)

Hypothesis:

The research will primarily utilize a method of experimentation for evaluating assumptions, wherein a study will be conducted and several individuals will acquire the techniques in the intended way to derive the conclusion on the proposed hypothesis as followed.

- H^1 Critical thinking with TR Cutting techniques of patternmaking and origami can increase the creative level of fashion designers' and seamstresses.
- H^0 Critical thinking with TR Cutting techniques of and origami cannot increase the creative level of fashion designers' and seamstress.

Methodology:

Using a cross-sectional design, this study would employ both qualitative and quantitative methods to produce the right findings and responses to the research questions. Interviews with Shingo Sato, CEO of TRCS, TR design techniques, and other creative design professionals and experts would be used to gather primary data. The study would also use secondary data collection, asking professionals and students to complete a structured questionnaire to gauge their level of proficiency in pattern-making. The purposeful specimen method, which refers to deliberately choosing participants based on their traits, expertise, practices, or supplementary standards, is used to choose the samples. As convenience sampling entails finding people who are either fashion school students or working professionals with practical knowledge of fashion or patternmaking (B.Des students of NIFT 5-7 semesters and NID students of 5th/7th semester, BSc Fashion and Apparel Design, Diploma Fashion and Clothing Design students Technical Board Education, Engineering students of Fashion Technology, MSc Fashion and Apparel Design, TR students, and fashion professionals), particularly in the South Indian region, primarily because they are available, willing, or easy to contact.

creation of a rigorous 3-day to 10-day course manual centered on a skills-based learning program for architectural pattern-making. which would be under the direction of Shingo Sato, the creator of the Transformational Reconstruction (TR Cutting Method) technique, at TRCSI (TR Cutting School-India).

Using skill-measuring instruments to evaluate their abilities and support them, taking into

1. The nature of knowledge is predominantly theoretical. A participant who is knowledgeable about a particular topic has learned a great deal about it and is well-versed in the theories and concepts that underlie it.

2. Generally, abilities tend to be more "applicable" compared to skills. While possessing a base of knowledge, they are usually acquired through training programs and hands-on experience. A skill refers to the capacity to apply knowledge in particular situations or contexts, along with the execution of a designated task.

3: Abilities: A conglomeration of attitudes, abilities, knowledge, and other character attributes. For the purposes of this study, the (Dreyfus, 1980) “model of skill acquisition”—which is applied in the domains of operations research and education—describes how students gather skills via practice and structured instruction.

The assessment of data will be based on the degree of understanding and expertise of the individual. A novice has minimal knowledge and requires close supervision. An advanced beginner is familiar with the fundamentals of techniques used in simple jobs but requires supervision for the entire task. Competent individuals can carry out most tasks using their own judgment and have good working and background knowledge of their field. They are capable of navigating intricate scenarios by employing careful analysis and strategic planning, viewing actions in relation to broader, future objectives. Proficiency involves thorough knowledge of the discipline and field of practice, consistently meeting acceptable criteria and obtaining results for unfinished activities. Experts have authoritative knowledge of the field and profound tacit comprehension across all practice areas. Achieving excellence is relatively simple, and they can accept responsibility for generating their own interpretations and go beyond existing norms.

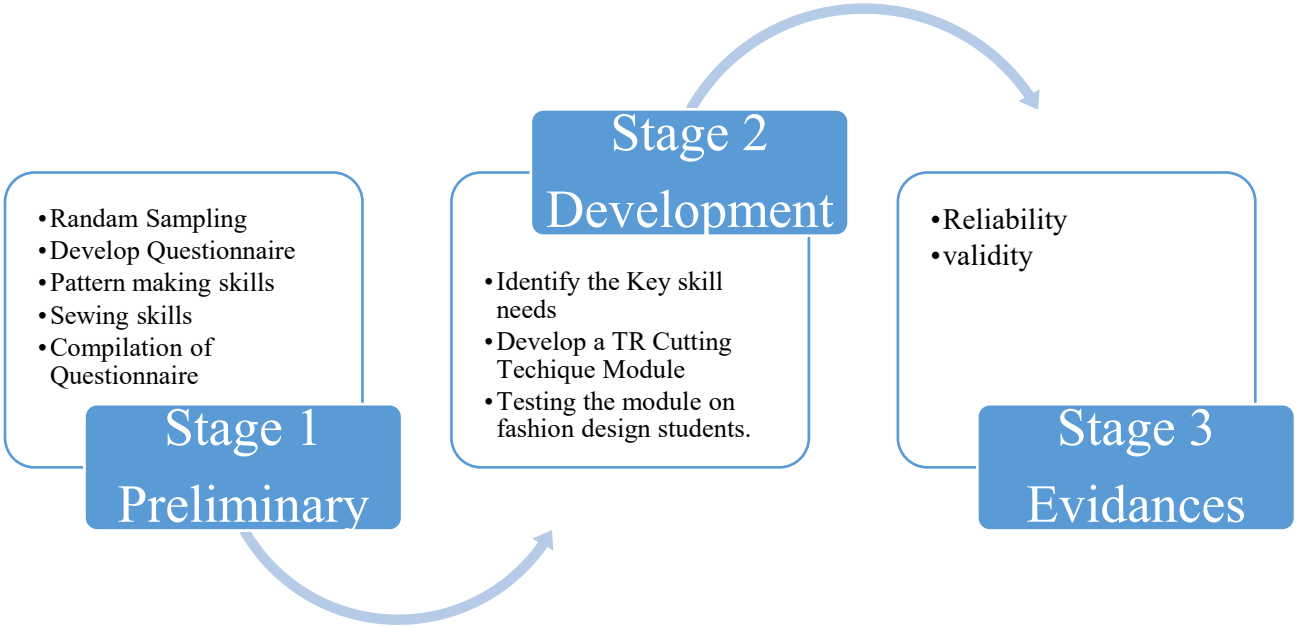
When evaluating quantitative data, it is focused on precession, well-defined numbers that convey tangible facts; like skills to percentages and measurements are examined using both exploratory and statistical data analysis tools."

Research Questions:

1. The significance of skills for fashion perception of making creative architectural patterns and scaling the current skill level
2. Do these techniques aid in better design, and what options are available to you?
3. How does this creative approach compare to traditional pattern-making, and do you think it can produce better designers?
4. Does the skill level increase as a result of creative pattern making? After mastering innovative pattern-making techniques, advance your abilities.
5. Do you advise designers to use this reconstruction patterning technique to hone their skills?

Research Methodology stages:

The study would be in 3 stages and 4th stage for Documentation



Expected Significances:

- High efficiency with TR Cutting techniques at the beginner level of pattern making and sewing skills.
- Major chances in the ability of design thinking by adapting TR Cutting techniques.
- Elevated level of converting conceptualized design in to creation with TR Cutting techniques at a reduced period of training.

Limitations

- Restricted study: restricted access to fashion design colleges in southern India and certain other establishes limited to authorizations from college/university authorities.

- Time constraints: Realistic issues that could reduce the amount of time available to investigate a research question.
- Budget: The expenses are out of reach and travel is enormous.

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